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6.14 WASTE MANAGEMENT

Procedures and facilities for the management of wastes at the Project are described in this section. The types and amounts of operational waste streams will qualify as less than significant (see Section 6.14.2 for significance thresholds) because of the following beneficial aspects of the Project related to waste management:

- Practices, procedures and facilities for recycling, handling and disposal of wastes, proven to be effective at Duke Energy's California plants, will be used in the Project.
- Waste minimization (i.e., in compliance with Senate Bill [SB]-14 regulations) will be integrated into the Project.

The Project will have the following programs to address the management of wastes and hazardous materials:

- Designated waste storage locations.
- Emergency response procedures.
- Employee training requirements.
- Hazard recognition.
- Fire control procedures.
- Hazard communications training.
- Personal protection equipment training.
- Release reporting requirements.

These programs will assure plant employees and the public that wastes are managed carefully, and that no significant impacts are caused by these wastes.

Based on a Phase I Environmental Site Assessment (ESA) conducted for the Site (Appendix 6.14-1), the Site has been used to farm potatoes, cotton, barley, melons and onions since 1951 when the land was cleared of native vegetation. The Phase I ESA concludes that there is no evidence of existing or historic contamination on or adjacent to the Site (TRC, 2001).

In California, hazardous wastes are classified according to their physical nature (liquid or solid) and their degree of hazard. The California Environmental Protection Agency (Cal-EPA), Department of Toxic Substances Control (DTSC) and the California State Water Resources Control Board (SWRCB) share the responsibility of classifying and regulating wastes in California. Wastes are classified according to regulations set forth in the California Code of Regulations (CCR) Titles 22 and 23. The classifications used by the DTSC reflect its mandate to protect public health and the environment, while classifications established by the SWRCB are designed to protect the beneficial uses of water.

Nonhazardous waste does not contain soluble pollutants in concentrations that would degrade water quality. Nonhazardous wastes may be disposed of at Class III waste disposal facilities. According to the SWRCB, nonhazardous wastes are further divided into solid wastes that contain substantial quantities of degradable material (i.e., common municipal solid waste) and inert wastes, which do not contain degradable materials. Solid waste disposal is regulated by the California Integrated Waste Management Board (CIWMB) and the Local Enforcement Agency (LEA) for Kings County.

Hazardous waste is defined as any waste with a hazardous nature that exceeds criteria for toxicity, corrosivity, ignitability or reactivity as established by DTSC. Hazardous waste also includes specific listed wastes as identified in CCR, Title 22, Section 66261. Most hazardous wastes may be disposed of only at Class I waste disposal sites approved by DTSC. Certain hazardous wastes, classified as restricted hazardous wastes, are banned entirely from land disposal because they pose a high threat to public health and the environment. Land disposal restrictions are provided in CCR, Title 22, Section 66268.

Designated wastes are either: (1) a hazardous waste for which the generator has been granted a variance by the DTSC; or (2) a nonhazardous waste which contains pollutants that could be released into the environment in concentrations that could degrade water quality. Designated waste may be disposed of only at Class I or Class II waste disposal facilities.

The discussion of waste management begins with existing conditions of the Project site which, as farmland, contains no waste. Section 6.14.2 discusses the less-than-significant impacts associated with the waste management aspects of Project construction and operation of the new generating unit. Hence, the Project requires no mitigation (Section 6.14.3) and causes no significant unavoidable adverse impacts (Section 6.14.4). Compliance with applicable laws, ordinances, regulations and standards (LORS) is discussed in Section 6.14.5.

6.14.1 EXISTING CONDITIONS

The Project is located in the City of Avenal, Kings County, California. The Site is east of Interstate 5 and surrounded by open farmland.

6.14.1.1 Phase I Environmental Site Assessment

A Phase I ESA was conducted at the Site to identify the presence or likely presence of hazardous substances or petroleum products in the onsite soil, ground water or surface water related to an existing or historic release. The Phase I ESA was conducted by TRC in April 2001 in general accordance with American Society for Testing and Materials (ASTM) standard designation E1527-94, Standard Practice for ESA: Phase I ESA Process.

The Phase I ESA confirmed the expectation that there is no evidence of contamination or other recognized environmental condition on or adjacent to the Site. A copy of the report is provided as Appendix 6.14-1 of this Application for Certification (AFC).

6.14.1.2 Waste Disposal

Table 6.14-1 describes three Class III waste disposal sites in the vicinity of the Project, each of which is capable of accepting the amount of nonhazardous solid waste that will be generated during project construction and operation. Municipal solid waste generated at the plant will be routinely separated according to recyclable (e.g., glass, aluminum, paper) and nonrecyclable fractions to minimize the quantity of waste disposed offsite.

The three following major Class I hazardous waste landfills, each with a minimum of 20 years capacity, are located in California:

- The Buttonwillow facility of Safety Kleen in Kern County has a permitted capacity of 13 million cubic yards. It had approximately 90 percent of its capacity (11 million cubic yards) remaining as of 2001 (Buoni, 2001). It is estimated it can receive waste for the next 30 to 40 years, or until after 2030. The United States Environmental Protection Agency (EPA) identification number for this facility is CAD980675276.
- The Chemical Waste Management, Inc., Kettleman Hills facility in Kings County had a permitted capacity of 10.7-million cubic yards, with about 34 percent (3.6-million cubic yards) remaining as of 2001 (Henry, 2001). It is estimated that Kettleman Hills will be able to receive hazardous waste for the next 20 years, or until approximately 2020. The EPA identification number for this facility is CAT000646117.
- The Westmorland facility of Safety Kleen in Imperial County has a permitted disposal capacity of 5-million cubic yards. It had about 50 percent of its capacity (2.5-million cubic yards) remaining as of 2001 (Carlsen, 2001). At present rates of disposal, it is estimated it can receive waste for the next 50 years, or until approximately 2050. The EPA identification number for this facility is CAD000633164.

TABLE 6.14-1

SUMMARY INFORMATION[1]
CLASS III WASTE DISPOSAL SITES
IN THE VICINITY OF THE PROJECT

CHARACTERISTICS	CITY OF AVENAL[2]	COALINGA[3] DISPOSAL SITE	KETTLEMAN HILLS[4] FACILITY
Location	201 N. Hydril Road, Avenal	1 mile east of Hwy. 198 and Alcade on Lost Hills	1 mile north of SR 41, 9 miles southeast of Avenal
Current Annual Disposal Rate (tons per year)[5]	10,000	19,000	185,000
Permitted Daily Disposal Rate (tons per day)	300	50	800
Actual Daily Disposal Rate (tons per day)	30	50	800
Remaining Capacity (million cubic yards)	6.6	2.2	3.6
Anticipated Year of Closure[6]	2050	2050	2020
Approximate Distance From Site (miles)	2	16	9
Subject to Agency Enforcement Actions	No	No	No

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(1) Information derived from California Integrated Waste Management Board Landfill Tonnage Report (2001) and Solid Waste Information System (SWIS) database (2001), then confirmed by individuals at the disposal facilities.
(2) Watson, 2001.
(3) Hays, 2001.
(4) Henry, 2001.
(5) Assumed 350 operating days per year.
(6) Anticipated date of closure varies, as landfill use depends on a number of variables, including population growth, waste-to-soil ratio, compaction, recycling, economic conditions, weather.

Oily debris also may be disposed at the Class II Forward Landfill located near Manteca, California (San Joaquin County). This landfill has remaining capacity of 12.9-million cubic yards, which will last until approximately Year 2050 (CIWMB, 2001).

Several waste oil haulers and recyclers are available to serve locations in Kings County:

- Allwaste - Philip Services, San Ardo, California
- Evergreen - Santa Maria, California (tank farm); Newport Beach, California (corporate office)
- PW Environmental - Santa Paula, California

The following hazardous waste transporters may be used to transport hazardous waste from the Project:

- Allwaste Transportation & Remediation, Inc. EPA No. CAD980584510
- Evergreen Environmental Services EPA No. CAD980695761
- Safety-Kleen Corp. EPA No. ILD984908202

The following treatment, storage or disposal facilities may be utilized for hazardous waste generated by the Project:

- Chemical Waste Management, Inc. EPA No. CAT000646117
  Kettleman City, California 93239
- ENSCO West, Inc. EPA No. CAD044429835
  Wilmington, California 90744
- Evergreen Environmental Services EPA No. CAD982446858
  Santa Maria, California 93454
- Mercury Recovery Services EPA No. CAL000043715
  Monrovia, California 91016
- Romic Environmental Technologies, Corp. EPA No. CAD009452657
  East Palo Alto, California 94303
- Safety-Kleen Corp. EPA No. CAD093459485
  Reedley, California 93654
- Safety-Kleen Corp. EPA No. CAT000613893
  El Monte, California 91731

6.14.2 IMPACTS

Significance criteria are based on California Environmental Quality Act (CEQA) Guidelines, Appendix G, Environmental Checklist Form (approved January 1, 1999) and performance standards or thresholds adopted by responsible agencies. A significant impact may result if:

- Construction or operation results in waste materials being introduced into the environment in violation of federal, state or local waste management and disposal regulations.
- Construction or operation results in the generation of waste materials in excess of the receiving capacity of applicable disposal facilities.

Potential impacts are discussed in the following sections as they may relate to Project construction, operation and maintenance.

6.14.2.1 Construction Waste

Construction of the Project will generate wastes. Project construction areas will include the footprint of the new generating unit and equipment laydown area, and linear facility corridors. A summary of anticipated construction waste streams and estimated quantities are described below and listed in Table 6.14-2.

6.14.2.1.1 Nonhazardous Construction Waste

The types of nonhazardous solid wastes generated during Project construction activities will include minor vegetation debris from site grading and excavation, lumber, excess concrete, metal and glass scrap, and empty nonhazardous containers. Paper, wood, glass and plastic waste will be generated from packing materials, excess lumber and insulation. Management of these wastes will be the responsibility of the construction contractors. Typical management practices include recycling, proper temporary storage of waste and debris, and housekeeping of work areas. Pickup and disposal of waste at a local Class III landfill will occur frequently enough to prevent unnecessary accumulation of waste onsite.

The types of solid waste generated by Project construction are summarized in Table 6.14-2 in terms of origin and composition, estimated amount, frequency of generation, and waste management method. These wastes will be similar to those generated by industrial construction projects in general, and the amounts will not be enough to cause a significant impact on local landfill capacities. The 40 cubic yards per week of nonhazardous solid waste generated by Project construction over 20 months will amount to a total volume that is small compared to the remaining 2.2 to 6.6 million cubic yards of individual disposal site capacity listed in Table 6.14-1 and, therefore, will not have a significant impact on existing waste disposal capacities.

During Project construction, some nonhazardous liquid wastes will be generated, mainly wastewater from sanitary waste, pipe hydrotesting equipment washing, and stormwater runoff. Construction-related sanitary wastes will be collected in portable self-contained chemical toilets. They will be pumped periodically and transported by licensed hauler to a sanitary wastewater treatment facility. Equipment wash water will be periodically generated at designated wash areas and transported by a licensed vacuum-truck hauler to an industrial wastewater treatment, storage and disposal facility.

TABLE 6.14-2

CONSTRUCTION WASTES AND MANAGEMENT

WASTE TYPE	WASTE STREAM CLASSIFICATION	EXAMPLE COMPOSITION	ESTIMATED AMOUNT	ESTIMATED FREQUENCY OF GENERATION	WASTE MANAGEMENT METHOD	
					Onsite	Offsite
Nonhazardous or Hazardous	Liquids	Used and waste lube oil during CT and ST lube oil flushes	1,100 gallons	200 drums during 20 month construction period	Store for <90 days	Recycle
		Waste oil from oil waste holding tank	20 gallons	Monthly	Store for <90 days if hazardous	Recycle
		Hydrotest water	300,000 gallons	One-time: Prior to initial startup	Sample. If suitable for discharge, route to retention basin. If hazardous, store <90 days	If hazardous, dispose at treatment storage and disposal facility (TSDF)
		ST and HRSG Cleaning waste: Chelant type solution, mild citric acid, tri-sodium phosphate, EDTA(1) or ammonium bifluoride	150,000 to 350,000 gallons	One-time: Prior to initial startup	Sample. Hazardous waste portion stored <90 days for offsite transport and disposal	If hazardous, dispose at TSDF
Hazardous	Solids	Spent welding materials	200 pounds	Monthly	Containerize	Class I landfill disposal
		Waste oil filters	200 pounds	Monthly	Containerize	Class I landfill disposal
		Fluorescent, mercury vapor lamps	30	Yearly	Store for 1 year	Recycle
		Oily rags, oil absorbent generated during normal construction activities excluding lube oil flushes	55 gallon drum	Monthly	Store for <90 days	Oily rags would be recycled. Class I landfill disposal for other solids.
		Empty hazardous material containers	1 cubic yard	Weekly	Store for <90 days	Class I landfill disposal
		Spent lead acid/ alkaline heavy duty batteries	1 ton	Variable	Store for <1 year for offsite transport and recycling(2)	Transport to recycling facility
	Liquids	Solvents, used oils, paint, adhesives, oily rags	165 gallons	Monthly	Store for <90 days for offsite transport and recycling or transport	Recycle or dispose at TSDF

TABLE 6.14-2

CONSTRUCTION WASTES AND MANAGEMENT
(Continued)

WASTE TYPE	WASTE STREAM CLASSIFICATION	EXAMPLE COMPOSITION	ESTIMATED AMOUNT	ESTIMATED FREQUENCY OF GENERATION	WASTE MANAGEMENT METHOD	
					Onsite	Offsite
Nonhazardous	Solids	Scrap wood, steel, glass, plastic, paper, trash, construction debris, household-type waste	40 cubic yards	Weekly	Containerize/ Housekeeping	Recycle or dispose at Class III
	Liquids	Construction area stormwater runoff (contains water, inert materials, dirt, concrete particles)	10.8×10^6 gallons(3)	Annually	NPDES stormwater program (drainage to onsite retention basin)	Runoff to surrounding land in pre-existing pattern
		Sanitary waste from portable chemical toilets	300 gallons	Daily	Periodically pumped to tanker truck by licensed contractors	Discharge by contractor to sanitary sewer and municipal sewage treatment plant

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(1) EDTA = ethylenediaminetetraacetic acid.
(2) Universal waste type can be stored for up to 1 year by a small quantity handler.
(3) The indicated volumetric rate is based on a 7.8-inch rain storm event over the estimated construction disturbance of approximately 50 acres.

Stormwater runoff during construction activities will be managed by implementing Best Management Practices (BMP) in accordance with state and local regulatory requirements, the Stormwater Pollution Prevention Plan, and the stormwater National Pollutant Discharge Elimination System (NPDES) construction permit requirements applicable to the Project (see Section 6.5 - Water Resources). Implementation of BMPs and adherence to NPDES permit requirements will reduce potential impacts of construction wastewater to a level that is less than significant.

6.14.2.1.2 Hazardous Construction Waste

During Project construction, commercially-available chemicals (e.g., paint, paint thinner, primer, motor oil) and materials will be used and stored in the construction area. Hence, small quantities of unused or spent chemicals (e.g., used paint, used motor fluids) will be generated. Proper offsite treatment and disposal of these small quantities will be the responsibility of the individual contractors. As part of its contract specifications for construction contractors, Duke Avenal will require that hazardous waste be handled and disposed in accordance with applicable LORS (e.g, Hazardous Waste Manifest forms for shipping and Chain-of-Custody, container labeling, release reporting). The most likely disposal facility would be the Kettlemen Hills facility because it is nearest.

The types of hazardous wastes generated by Project construction are summarized in Table 6.14-2. These wastes will be similar to those generated by industrial construction projects in general, and the amounts will not be enough to cause a significant impact on existing hazardous waste landfill capacities. Based on existing disposal rates and capacities of facilities addressed in Section 6.14.1.3, Project construction will generate approximately one cubic yard of solid hazardous waste each week, which will not have a significant impact on existing Class I waste disposal capacities.

6.14.2.2 Operational Waste

Based on practices, procedures and facilities at both the Duke Energy's California plants that have been proven to be compliant with all waste regulations and effective at waste minimization, similar procedures will be developed and written for this Project.

6.14.2.2.1 Nonhazardous Operational Waste

Operation and maintenance of the Project will generate various types of nonhazardous solid waste (Class III) typical of power generation. Equipment operation and maintenance results in broken,

defective and degraded parts, empty containers, wood pallets, packaging and other spent materials. Administrative activities and site personnel generate paper, cardboard, food waste, etc. Some wastes, such as paper, aluminum cans and plastic containers, are suitable for recycling. Large roll-off containers are provided for the collection and recycling of scrap metal (typically steel and aluminum).

Approximately 50 tons of solid waste from routine maintenance and operation will be generated by the Project on an annual basis. Additionally, the Zero Liquid Discharge Facility (ZLDF) and the raw water softener clarifier (RWSC) will generate approximately 1,500 to 5,000 tons per year of salt cake waste from the crystallizer and 1,900 to 3,200 tons per year of dewatered clarifier sludge, respectively, depending on actual water quality. This product will be disposed of at a Class III landfill. The potential disposal of up to 8,300 tons per year of nonhazardous solid waste from the Project would not exceed the permitted disposal rate at Avenal landfill, and hence would also not exceed the combined permitted disposal volumes at the three landfills in the vicinity of the Project (see Table 6.14-1). The Class III waste quantities from the Project will not exceed available landfill disposal rates and therefore will be insignificant. Spent CO Oxidation catalyst (approximately 4.5 tons every 3 years) will be returned to the manufacturer for metals reclamation and/or disposal. Table 6.14-3 describes nonhazardous solid wastes that will be generated during facility operation, including a description of each nonhazardous solid waste, its origin and composition, estimated amount, frequency of generation, and waste management method.

A water collection system will provide for the collection, treatment and recycle of wastewater generated by the Project. All process blowdown will be treated using the ZLDF. Process water routed to the ZLDF will be recycled; only a nonhazardous solid salt cake will be generated, with disposal at a local Class III landfill. Plant and equipment drains in oil and chemical storage areas will be contained and routed through an oil/water separator. Stormwater runoff from "non-industrial" areas, including parking lots and roads, during construction and operation will flow directly to an onsite retention basin. This approach will be described in the Stormwater Pollution Prevention Program, which will be implemented pursuant to a General NPDES permit.

Implementation of the ZLDF water treatment system will eliminate wastewater discharge from the Project and the potential for impacts to offsite water resources or wastewater treatment facilities. Sanitary waste will be directed to an onsite septic tank and leach field system designed to handle average daily flows of approximately 2,500 gallons per day (gpd).

Overall, impacts of nonhazardous operational wastes from the Project will be less than significant.

6.14.2.2.2 Hazardous Operational Waste

During the normal course of Project operation and maintenance, hazardous materials will be used, including solvents, ethylene glycol (antifreeze), batteries and petroleum lubricants (see Section 6.15 for a discussion of hazardous materials). Use of these materials during power plant operations results in the generation of hazardous waste. Table 6.14-3 describes the primary hazardous wastes that will be generated by facility operations.

Hazardous wastes will include the following:

- Petroleum-contaminated wastes, debris, containers, batteries, sandblast sands and boiler bottom ash are generated in batch mode and stored in designated hazardous waste accumulation areas prior to disposal at an appropriate offsite disposal facility.
- Oily Wastes: Approximately 1,300 gallons per year (less than 5 gallons per day) of used crankcase oil and hydraulic oil will be generated. Waste oil will be stored and maintained in a secured hazardous waste storage area with secondary containment. Used oil and other oily wastes will be recycled whenever possible. Waste oil and recovered oil from the oil/water separator will be recycled by a licensed oil recycler. Oily rags and oil absorbent (used to contain small spills) will be generated as a normal part of maintenance activities. These wastes will be collected near the point of generation in a hazardous waste accumulation container. The oily rags may be sent to an authorized industrial cleaning service for recycling or disposed at a Class I landfill.
- Selective Catalytic Reduction (SCR) Catalyst: Spent catalyst containing heavy metals (approximately 50 tons every 6 years) will be returned to the manufacturer for metals reclamation and/or disposal.
- Cleaning Solutions: Periodic turbine washing and chemical cleaning of the heat recovery steam generators (HRSGs) will be conducted by a licensed contractor. Typically, turbine washwater effluent will be temporarily stored onsite in portable tanks. The effluent will be tested to determine if it is hazardous or nonhazardous and then disposed by the licensed chemical cleaning contractor at an appropriate offsite treatment, storage and disposal facility. HRSG cleaning solutions will be collected by the contractor and disposed offsite.

Hazardous materials that will be stored and utilized at the plant in accordance with applicable LORS are discussed in Section 6.15 - Hazardous Materials Handling.

The Project will have the following plans related to management of hazardous wastes:

- Business Plan/Contingency Plan.
- Spill Prevention Control and Countermeasure Plan.
- Stormwater Pollution Prevention Plan.
- Best Management Practices Plan.

TABLE 6.14-3
OPERATIONAL WASTE STREAMS

TYPE	PHASE	EXAMPLES	DESCRIPTION/ COMPOSITION	ANNUAL QUANTITY GENERATED[1]	FREQUENCY OF GENERATION	WASTE MANAGEMENT METHOD	
						ONSITE	OFFSITE
Nonhazardous	Solids	• Office waste • Other municipal trash	Paper products, trash, minor construction debris, household-type waste	50 tons	Daily/ Continuous	Containerize/ Housekeeping	Dispose at Class III landfill
		CTG used air filters	CTG used air filters	2,100 filters	Every 3 years	Store <90 days	Dispose at Class III landfill
		• Salt cake from Zero Liquid Discharge Facility (ZLDF) crystallizer	Precipitated crystalline salt from concentrated brine slurry in the ZLDF	1,500 - 5,000 tons	Daily/Continuous	Containerize/bins	Dispose at Class III landfill
		• Clarifier sludge from raw water softener clarifier (RWSC)	Clarifier sludge from RWSC	1,900 - 3,200 tons	Daily/Continuous	Containerize/bins	Dispose at Class III landfill
		• Spent CO oxidation catalyst	Platinum group, heavy metals	4.5 tons	Every 3 years	None	Return to vendor
	Liquids	• Stormwater runoff	Runoff from plant	3.4×10^6 gallons[6]	After storms	Route NPDES Stormwater Program drainage through oil/water separator and onsite basin.	NPDES Stormwater Program. Retain drainage onsite
		• Sanitary wastewater	Sanitary wastewater plus potable water drains	913,000 gallons (@2,500 gpd)	Continuous	Discharge to septic tank and leach field	None
Hazardous	Solids	• RCRA hazardous waste solids • Non-RCRA hazardous waste solids	Waste paint, containers, batteries, petroleum wastes, sandblast waste, oily rags	10 tons[2]	Variable	Store < 90 days; waste minimization practices per SB-14	Dispose at Class I landfill
		• Fluorescent, mercury vapor lamps	Glass, phosphor coating	30	Yearly	Store for 1 year	Recycle
		• Spent SCR catalyst	Heavy metals	50 tons[3]	Every 6 years	None	Return to vendor
	Liquids	• RCRA hazardous waste liquids • Non-RCRA hazardous waste	Spent solvents, waste paint, waste ethylene glycol, oily water, waste oil and some chemical cleaning rinses	3,000 gallons	Variable	Store <90 days. Capture EDTA chemical cleaning waste for recycling and treat as an excluded recyclable material	Dispose at TSDF
		• RCRA hazardous waste liquids • Non-RCRA hazardous waste	Used crankcase oil and hydraulic oil	1,300 gallons	Yearly	Store <90 days	Recycle
		• Oily Water	Water with hydrocarbons (Waste oil reclaimed from oily water separator system)	800 gallons	Yearly	Store <90 days. Store for offsite transport and recycling.	Transported offsite to recycling facility

TABLE 6.14-3

OPERATIONAL WASTE STREAMS
(Continued)

TYPE	PHASE	EXAMPLES	DESCRIPTION/ COMPOSITION	ANNUAL QUANTITY GENERATED(1)	FREQUENCY OF GENERATION	WASTE MANAGEMENT METHOD	
						ONSITE	OFFSITE
Hazardous	Liquids	• CTG Washwater	CTG Washwater Cleaning Waste	42 tons(4)	Yearly	Sample. Store hazardous portion <90 days	If hazardous dispose at TSDF
		• HRSG Washwater	HRSG Washwater Cleaning Waste	210 tons(5)	Every 5 years	Sample. Store hazardous portion <90 days	If hazardous dispose at TSDF

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(1) Quantity will vary from year to year.
(2) Quantity based on experience at other power plants.
(3) Approximately 14,500 cubic feet of spent SCR catalyst will be returned to supplier every 6 years. Bulk density estimated as specific gravity of 0.64, based on 1,700 lbs of catalyst in a volume of 1.2 cubic meters (= 40 lb/ft^3) (Calvello, 2000).
(4) Based on approximately 10,000 gallons of wastewater per year.
(5) Based on approximately 250,000 gallons of wastewater every 5 years.
(6) The indicated volume is based on a 7.8-inch rainfall over 25 acres.

These management plans will include detailed measures to prevent and respond to discharges, spills, leaks or other incidents involving hazardous materials. These measures will include training of employees who handle hazardous materials, hazardous and nonhazardous wastes, and processes that generate these wastes. Other measures will be periodic inspections and the passive containment designs and structures that capture accidental spills before they can enter the environment.

Hazardous solids generated by operations will be stored in designated hazardous waste accumulation areas at the plant. These wastes will be stored for less than 90 days prior to offsite disposal, in accordance with applicable hazardous waste management regulations (e.g., Hazardous Waste Manifests and Chain-of-Custody forms, container labeling, release reporting).

Hazardous wastes will be stored in specific areas for limited periods of time (i.e., 90 days). Multiple hazardous waste disposal sites have been identified that can accept the specific hazardous waste streams discussed in Section 6.14.1.3. Regulations (CFR, Title 40, Chapter 1, Part 262) require that the Project evaluate each potential hazardous waste disposal site for its capacity and adherence to regulations controlling such disposal (i.e., protection of groundwater).

6.14.2.3 Waste Minimization

Duke Avenal will work to reduce the volume of waste generated by power plant operations. The following general measures will be routinely employed to minimize the amount of hazardous waste generated by the Project:

- Operational improvements.
- Changes in production processes and inputs.
- Administrative controls (e.g., inventory control, in-house employee incentive programs and training, corporate/management commitment).

Specific practicable waste minimization methods that will be used or at least evaluated include:

- Recycling of waste oil, oily water, used oil filters, solvents, mercury wastes, fluorescent tubes and light ballasts.
- Selected material that becomes available in surplus quantities, such as latex paint, will be provided to other plants or sold to employees instead of being disposed as hazardous waste.
- Designated makeup water system to include "leased" mixed-bed polisher with resins to be regenerated offsite by a vendor.
- Use of molybdate (nonhazardous) in bearing cooling water treatment.

Waste vegetation from landscape maintenance is not associated with electric power generation, but disposal will be reduced by shredding some of it and spreading it as mulch.

The effectiveness of source reduction approaches employed for each waste stream will be routinely evaluated to refine and improve the overall source reduction program. Evaluation will include an assessment of reduction estimates, potential barriers/impacts and recommendations to increase waste reduction.

6.14.2.4 Cumulative Impacts

Other projects are expected to be constructed and operated during the same period of time as construction and subsequent operation of the Project. These projects are listed in Table 6.1-1 and their locations are shown in Figure 6.1-1. The wastes from the first six offsite projects, which are also power plants, are similar to wastes that will be generated by the Project. The other power plants are located far enough away to be close to other landfills, and hence, will not produce a cumulative impact of waste disposal at the landfills) used by the Project.

The City of Avenal Water turnout relocation is the only nearby project listed in Table 6.1-1. It will generate only small quantities of solid waste that is disposed at the same landfills proposed for use by the Project. The transport of nonhazardous solid waste from that project to local landfills during construction of the Project, which might amount to one truck trip per day, will not cause a significant traffic impact.

Although the combined waste generation rates will be greater than for the Project alone, the potential cumulative total still remains less than the permitted disposal capacities of the landfills discussed in Section 6.14.1. Therefore, the cumulative impact of waste management from the Project plus offsite projects will not be significant.

6.14.2.5 Project Design Features

The following are design and/or operational features that have been incorporated into the Project to avoid potentially significant environmental impacts:

- Construction
  - Hazardous wastes generated during Project construction will be managed by the construction contractors according to applicable regulatory requirements (e.g., Resource Conservation and Recovery Act [RCRA] regulations and the California Hazardous Waste Control Act) and construction contract specification provisions designed to assure such compliance. This management of hazardous waste may, as necessary, include storage in designated satellite accumulation areas maintained by the construction contractor.

- Nonhazardous waste generated during Project construction also will be the responsibility of the construction contractors, as required by contract provisions. Management of these wastes will include proper storage and handling, recycling and general good housekeeping practices.
- Construction waste will be picked up and disposed frequently to avoid unnecessary accumulation of waste onsite.

• Operation and Maintenance
- The Project will minimize generation of nonhazardous liquid waste through use of a ZLDF.

6.14.3 MITIGATION MEASURES

Based on the above analysis of impacts and the design and operational features incorporated into the Project, no mitigation measures will be required, and no monitoring of the effectiveness of mitigation will be required.

6.14.4 SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

No significant unavoidable adverse impacts are anticipated due to Project construction, operation or maintenance.

6.14.5 LAWS, ORDINANCES, REGULATIONS AND STANDARDS (LORS)

A summary of applicable LORS pertaining to waste management practices is provided in Table 6.14-4. The Project will be constructed and operated in strict compliance with all LORS applicable to treatment, storage and disposal of hazardous and nonhazardous wastes. Table 6.14-4 summarizes how the Project will comply with regulations applicable to waste management. The only permits related to waste management that will be required are the Construction and Operation NPDES permits. Agencies with enforcement authority over the Project are listed in Table 6.14-5 along with contact information.

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TABLE 6.14-4

WASTE MANAGEMENT LORS AND COMPLIANCE

JURISDICTION	LORS/AUTHORITY	ADMINISTERING AGENCY(1)	REQUIREMENTS/ COMPLIANCE	APPROACH TO COMPLIANCE	AFC SECTION
Federal	RCRA; 42 USC §6901 et seq.; 40 CFR Parts 260-272.	EPA Region 9; Cal-EPA, Department of Toxic Substances Control (DTSC).	Management of hazardous wastes. No permit.	When hazardous waste is generated, special forms will be used to track it and maintain a Chain-of-Custody through its final disposal at a licensed hazardous waste (Class I) landfill.	6.14.2.1.2, 6.14.2.2.2 Page 6.14-8
	CERCLA ("Superfund"), 42 USC §9601 et seq.; 40 CFR Part 302, as amended by SARA; 40 CFR Part 302, (SARA Title III); 42 USC §11001 et seq.; 40 CFR Parts 350, 355, 370.	EPA Region 9; Kings County Environmental Health Department.	CERCLA - Release notification requirements; SARA Title III - reporting requirements for storage, handling, or production of significant quantities of hazardous or acutely hazardous waste.	The Project will keep records and prepare reports on reportable releases and emissions to land, water, and the atmosphere.	6.14.2.1.2, 6.14.2.2.2 Page 6.14-8
	49 CFR Parts 172, 173, 179.	Department of Transportation; California Highway Patrol.	Meet standards for labels, placards, and markings on hazardous waste shipments.	Hazardous waste containers and shipping vehicles will be labeled according to regulations.	6.14.2.1.2, 6.14.2.2.2 Page 6.14-8
State	California Porter-Cologne Water Quality Control Act; California Water Code §13260-13269; 23 CCR §2510 Article 9 et seq.	San Joaquin RWQCB.	Waste discharge requirements for solid waste discharges to land.	The project design includes a ZLDF that eliminates the need for a discharge, except stormwater and septic wastes. These discharges will be permitted in compliance with LORS.	6.14.2.1.1, 6.14.2.2.1 Pages 6.14-6, 6.14-8
	14 CCR §17200 et seq.	California Integrated Waste Management Board.	Sets forth minimum standards for solid waste handling and disposal.	Plant procedures will be written that conform to these standards.	6.14.2.2 Page 6.14-8
	Hazardous Waste Control Act of 1972, as amended; California Health & Safety Code §25100 et seq.; 22 CCR 66001 et seq.	Cal EPA (DTSC); Kings County Environmental Health Department; Avenal Fire Department.	Meet requirements for management of hazardous wastes.	Incorporate hazardous waste minimization. Record keeping and reporting will follow same practices currently used at Duke Energy's California Plants.	6.14.2.1.2, 6.14.2.2.2 Page 6.14-8
Local	City of Avenal Zoning Ordinance. Section 6.2.	Avenal Public Works Department: San Joaquin RWQCB.	Comply with standards that regulate discharge of harmful liquid or solid waste.	Wastes will be discharged according to standards (e.g., NPDES permit).	6.14.2.1.1, 6.14.2.2.1 Page 6.14-8
Industry	None Applicable	None Applicable	None Applicable	None Applicable	None Applicable

31161/Rpts/AFC/Avenal (9/27/01/rm)

(1) NOTE: Pursuant to CCR Title 20, Appendix B(h)(1)(B). Each agency with jurisdiction to issue applicable permits and approvals or to enforce identified laws, regulations, standards, and adopted local, regional, state and federal land use plans, and agencies which would have permit approval or enforcement authority, but for the exclusive authority of the Commission to certify sites and related facilities.

TABLE 6.14-5

ADMINISTRATIVE AGENCY CONTACTS AND PERMITTING/APPROVAL AUTHORITIES FOR WASTE MANAGEMENT

AGENCY AND CONTACTS	PERMITTING/APPROVAL AUTHORITY
Kings County Department of Public Health Division of Environmental Health Services 330 Campus Drive Hanford, CA 93230 (559) 584-1411, Ext. 2625 (559) 584-6040 Fax Keith Winkler Director	Hazardous waste minimization.
State of California California Environmental Protection Agency Department of Toxic Substances Control 1515 Tollhouse Road Clovis, CA 93611-0522 (559) 297-3901 (559) 297-3904 Fax Edwin F. Lowry Director	Compliance with hazardous waste generation regulations.
State of California California Regional Water Quality Control Board Central Valley 3614 East Ashlan Avenue Fresno, CA 93726 (559) 445-5116 (559) 445-5910 Fax Loren J. Harlow Assistant Executive Officer	Compliance.

31161/Sec 6.14/Tbls&Figs (9/26/01/rw)